

Potentiality of development for integrated geology and paleoceanography science in polar oceans

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The Arctic and Southern Oceans (AO and SO) are key regions with profound influence on climate variability throughout the Cenozoic. Recent global warming changes Arctic environments drastically, and future prediction of Arctic climate is now desired. Future scientific issues are the progress of Cenozoic cooling, sea ice distribution in the climatic warmth, the climatic significance of the Bering Strait, the climatic impact on Arctic human societies. Because the SO redistributes heat, fresh water, carbon and nutrients around the global ocean and it plays a key role in the climate system. The growth of ice sheets in the Antarctic continent and changes in sea ice in the surrounding ocean are important variables in earth's climate system. Paleoclimate records from latitudinal transect drilling on the continental shelf and offshore around the East Antarctic margin are also necessary for understand the dynamics of interaction between East Antarctic Ice Sheet (EAIS) and SO. Systematic planning for seafloor drilling, coring and bathymetrical survey using icebreakers are necessary for further paleoceanographic study in the Arctic and Southern Oceans.